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ABSTRACT

The Reinforced Readiness Requisites (RRR) program was developed to provide Mexican-American, Indian, and Black children with the necessary motivation for learning. Comprised of a three-stage behavior modification strategy to improve substandard academic performance, RRR utilizes tangible rewards with the additional components of token and intermittent reinforcement schedules to prevent performance decrement once tangible sources of reinforcement are withdrawn. Results from two field tests reveal that (1) experimental subjects performed significantly better than controls, (2) experimental subjects showed substantial gain from pretest to posttest, and (3) subjects maintained their performance in the absence of tangible rewards. (Author/DP)

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Reinforced Readiness Requisites: A Culturally Relevant Behavior Modification Program For Mexican-American Indian and Black Children

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Abstract

The Reinforced Readiness Requisites (RRR) program was developed to provide Mexican-American, Indian and Black children with the necessary feelings of motivation for learning. Comprised of a three stage behavior modification strategy to improve substandard academic performance, RRR utilizes tangible rewards with the additional components of token and intermittent reinforcement schedules to prevent performance decrement once tangible sources of reinforcement are withdrawn. Results from two field tests reveal that (1) experimental subjects performed significantly better than controls, (2) experimental subjects showed substantial gain from pre to post test, and (3) they maintained their performance in the absence of tangible rewards.

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Almost invariably the teacher's affective behavior sets the guidelines for pupil performance. His encouragement, praise, and attention are important elements in redirecting the pupils' behavior. However, it has been found that reinforcers such as praise or good grades typically used in the traditional classrooms are not effective with all children (Ziegler, et al, 1962).

To teach ethnic minority children successfully, the teacher should be cognizant of cultural differences so that he can avoid creating deterrents to learning by inadvertently arranging classroom situations incompatible with the norms of the child's culture (Burger, 1968, Zintz, 1963).

Cumulative pressures to achieve, from parents and peers, are typically absent among many culturally different children (Moles, 1967). Since the children receive little or no encouragement for educational achievement, their attitude toward school frequently becomes apathetic.

Research at the South-Western Cooperative Educational Laboratory, beginning in 1967 and culminating in 1971, was conducted to help develop a culturally relevant program that would alleviate the academic deficiencies which the

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Mexican-American, American Indian and Black populations had in common. More specifically, the program referred to as "Reinforced Readiness Requisites" (RRR) was designed to instill motivation through a system of behavior modification strategies directed toward enabling the ethnic minority child to acquire the competencies and the motivational patterns that are prerequisites for optimal learning in school.

Subjects:

Two field trials involved 2,963 subject of predominately Mexican-American, Indian (Navaho, Pueblo, Apache, Yaqui and Pima) and Black sub-cultures. Subjects were both rural and urban, residing west of the Mississippi, especially in southwestern and bordering states and ranging in age from three to seven years. They typically came from home environments where (1) they engaged in few experiences directly related to the middle majority school culture, (2) a disparity between their repertoire of communication skills and that required by the educational system existed, and (3) low expectation for successful school experiences was prevalent.

Procedures:

Controlled comparisons occurred during the 1968-69 field trials where a traditional experimental and control group paradigm was set up. Of these, 1,242 received the program while the remaining 787 served as controls. The experimental population during the 1969-70 field trial was compared to themselves prior to the introduction of the RRR program. Sex and ethnic variables were investigated during both runs.

Both field trials were based on essentially the same procedures. The major changes in the 1969-70 version were directed toward refining some aspects of the behavior modification strategies. Transitions between phases were made more gradual and a more sophisticated schedule was utilized for tapering off rewards.

In 1968-69, data were obtained from both experimental and control groups on post tests; in 1969-70 data were obtained on pre and post tests from the experimental group only. The two sets of data complement each other and thus are included in this paper.

The program, consisting of three major reinforcement phases over a 36 week period, was directed toward helping teachers enhance education of culturally divergent children by (1) offering subject matter that was meaningful in the context of the child's world (i.e., culturally relevant) and (2) developing teaching strategies that accommodated the child's background of experience.

The subject matter selected for development was reading readiness. The lessons were designed to minimize cultural bias by deleting any unfamiliar material that was not central to teaching a concept. For example, materials infrequently seen on the inland portion of a reservation such as stereos, traffic lights, and electric tooth brushes would be omitted.

The concepts taught in the RRR program were basic for preschool, kindergarten, or first grade culturally different children and included lessons on visual discrimination, associative vocabulary, aural discrimination, listening, and numerical concepts.

During the first phase before a lesson was completed the teacher gave a reward (i.e., toy) based on acceptable group performance. Thus, the children were taught to work for the good of the class. Since rewarding individuals in competitive situations is not common to cultural minorities, rewards were always given on the basis of group rather than individual achievement. Rewards were initially administered on a continuous reinforcement schedule followed by an intermittent reward schedule.

During the second phase token reinforcement was built into the system to provide the link enabling culturally different children to move from immediate (i.e., daily) to more deferred gratification without harmful by-products. Tokens

were advantageous because they could attain secondary reinforcing power through exchanging them for backup rewards. They also appeared to have the added advantage of being effective regardless of the child's individual preference since the child had the option of selecting his reward from an array of toys.

In the final phase, tangible rewards were gradually withdrawn. Tokens and backup rewards are progressively tapered off until the desired performance is maintained through the subject's own motivation and the teacher's conventional praise.

Results:

The basic data were obtained through the application of individual daily retention, and post tests. Daily tests were administered subsequent to each day's lesson yielding information regarding immediate acquisition rates. Data from retention and post tests provided indices of long term memory or forgetting.

The analysis of variance with respect to increasing and maintaining reading readiness behaviors shows that subjects participating in the RRR program scored significantly higher (mean 88.62% and standard deviation 3.99 on the RRR post test) than controls (mean 74.40% and standard deviation 5.41) at the end of the 1968-69 school year ($P \leq .01$).

An analysis of the data concerning the child's ability to defer gratification (scores were plotted by district) was based upon the distribution of scores on daily diagnostic tests, across weekdays. Inspection of Figure 1 indicates that a performance increment did not occur on the day when rewards were administered (i.e., every fifth day). Rather, the distribution of scores during this phase was "rectangular" as opposed to "scalloped."

Further inspection of Figure 1 reveals that performance scores on daily diagnostic tests remained high even though a progressive diminuation of toys and tokens was occurring.

During Phase III, tokens and rewards were tapered off while scores on

retention tests, administered in the absence of extrinsic rewards, were consistently high.

Construction of the program deliberately excluded certain materials (items, concepts) that were most likely to be alien to the members of the target population. The purpose was to avoid putting the economically disadvantaged or ethnically different child in a further disadvantaged position. An analysis on RRR daily diagnostic tests revealed that while some ethnic groups did better on some content areas (e.g., Indians did better on visual pattern discrimination) overall ethnic differences were not prevalent. Data comparing males and females on diagnostic tests support the conclusion that the program was equally effective for boys and girls.

Information on the program's effectiveness in 1969-70 with respect to increasing and maintaining reading readiness and related entry skill behaviors was based on data collected in a pre-post paradigm involving 934 subjects. With respect to cognitive achievement, subjects showed significant improvement from pretest to the post test with a mean of 54.02% and standard deviation of 18.74 on the pretest and a mean of 87.40 and standard deviation of 13.32 on the post test ($P \leq .01$).

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Two independent analyses of demographic variables (sex and ethnic group) were undertaken to assess whether differential effectiveness along those dimensions had occurred. The assessment revealed that the program was equally effective for girls and boys.

Analyses based on ethnic data were inconclusive. However, Mexican American children, who composed about 80% of the population, showed a substantial gain in performance. Their pretest mean was 51.99% correct and their post test mean was 86.52% correct.

During the course of each field trial, a feedback system was established between participating teachers and developers. This system provided much

anecdotal information about the salient effects of the program.

Teachers and observers frequently reported enthusiastic displays (e.g., yelling and clapping hands, etc.) by children when a mouse (used to confirm criteria) was placed adjacent to a higher point on the scale than required to reach criteria. This occurred even on days when toys were not scheduled. Another frequent observation was that children in the program showed an increase in attendance records. It was also noted that the children became quite enthusiastic about the RRR tests suggesting that it was a pleasant experience.

Feedback obtained from a 1969-70 questionnaire and from comments on RRR data summary sheets indicate that teachers felt positively about the program. Reports indicated that they saw it as a systematic way of accomplishing a desired teaching goal.

Conclusions:

Feedback from the 1968-69 and 1969-70 field trials was generally positive. Children participating in the program were able to perform in a highly satisfactory manner on internal diagnostic retention and post tests. Post test results from both years appear to be highly replicable. The additional components of token and intermittent schedules of reinforcement appeared to prevent a decrement in performance when tangible sources of reinforcement were withdrawn. Teachers seem to enjoy the Reinforced Readiness Requisites program, viewing it as a systematic way of accomplishing a desired goal.

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